

# DASGIP's Bioreactors

## Bioreactors for Cell Culture Application

### Technology

DASGIP Parallel Bioreactor Systems combine the convenience of simple systems such as flasks with benefits of bioreactors: The systems' small working volumes allow high experimental throughput with minimal input while precision and automated control offer highly optimized scalable and reproducible processes.

The highly instrumented vessels contribute critically to this advanced system as the monitoring modules and the control system do.

To suit individual requirements DASGIP's bioreactors provide users with a great flexibility in size, shape and instrumentation. Each of them consists of an easy to autoclave glass body and a stainless steel head plate with standardized fittings and ports.

### Application

A wide range of different culture vessels guarantees superior results when working with CHO cells, Hybridoma, stem cells and many other eukaryotic cell lines.

Different sizes and shapes allow integration into various cell culture set-ups. Working volumes from 35 mL up to 6 Liters save resources such as media, isotopes and cell material. Working volumes from 300 mL to 6 L working volume can be operated in the DASGIP Bioblock, providing integrated temperature and agitation control for up to four vessels.

Each vessel can be fit out with a great choice of instruments. PH and DO sensors as well as high precision gas and media supply, including the perfusion option, can be installed. DASGIP vessels can be operated with headspace or submerged gassing. They are suitable for suspension and micro carriers.

Up to 16 vessels can be controlled with one cell culture set-up. When being part of the Parallel Bioreactor System or other control systems critical process parameters in applications such as protein production, cell line selection and process development can be controlled easily. For instance, substrate

feed can be controlled by the monitored dissolved oxygen allowing a DO triggered feed.

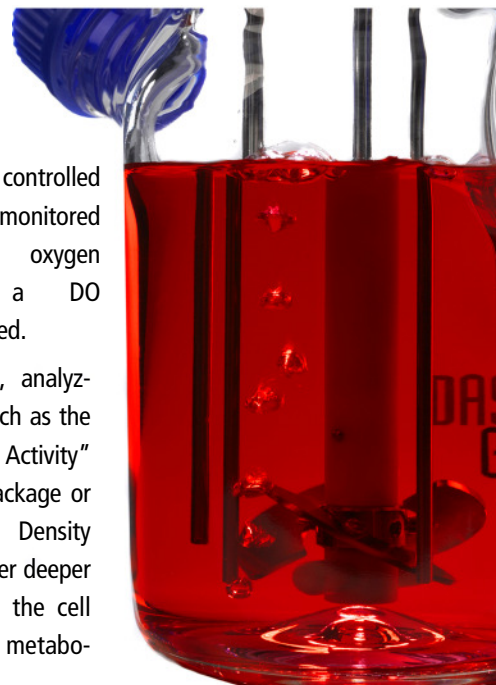
Additionally, analyzing tools such as the "Metabolic Activity" Software Package or the Optical Density Module, offer deeper insight into the cell growth and metabolism.

### Benefits

Instruments for monitoring, substrate feed, gas supply and sampling are implemented via DASGIP's in-house developed head plates. All head plates belong to DASGIP's head plate family. Made of stainless steel, all ports and fittings have a standardized format. This allows highest flexibility in use of different probes as well as instruments for aeration, feed, gassing and sampling. As ports suit industry sensors DASGIP reactors deliver the same quality of monitored data than large scale reactors, i.e. easily scalable results.

Different head plates feature 2 up to 17 ports allowing e.g. installation of pH and DO sensors, of the overhead drive or substrate supply.

The following bioreactors shall give an overview on the different models.







**Bioreactors Cell Culture**

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### Reactors

<p><b>DASGIP Bioblock Advanced Spinner Line DS</b></p> <ul style="list-style-type: none"> <li>■ <b>Working Volumes:</b> 60-200 mL (DS0200), 250-650 mL (DS0500)*, 300-800 mL (DS0700), 400-1200 mL (DS1000) and 400-1600 mL (DS1500)</li> <li>■ <b>Agitation:</b> Magnetic driven pitched-blade Impeller, Speed: 2–250 rpm and 60-500 rpm Suitable for DS0200, DS0500*, DS0700, DS1000 and DS1500 Overhead driven pitched-blade Impeller, Speed: 30–1250 rpm Suitable for DS1000 and DS1500</li> <li>■ <b>Instrumentation:</b> Headplate with eight PG13.5 and two 6mm ports supports pH, DO, OD and temperature sensors, exhaust gas port (optional off-gas condenser), gas supply, liquid addition/removal (media, acid/base, perfusion), level/antifoam control as well as sampling</li> <li>■ <b>Aeration:</b> Headspace and/or submerged gassing with dip tube or sinter glass sparger</li> </ul>	
<p><b>DASGIP Benchtop Bioreactor Line DR</b></p> <ul style="list-style-type: none"> <li>■ <b>Working Volumes:</b> 0.7-2.7 L (DR03)* and 0.8-3.8 L (DR04)*</li> <li>■ <b>Agitation:</b> Overhead driven pitched-blade Impeller, Speed 30-1250 rpm</li> <li>■ <b>Instrumentation:</b> Headplate with eight M18x1.5mm ports, eight 6mm ports and access for the overhead drive (versatile DASGIP compression fittings and adapters available) supports pH, DO, OD and temperature sensors, exhaust gas port (optional off-gas condenser), gas supply, liquid addition/removal (media, acid/base, perfusion), level/antifoam control as well as sampling</li> <li>■ <b>Aeration:</b> Headspace and/or submerged gassing with dip tube, sinter glass sparger or L-sparger</li> </ul>	
<p><b>DASGIP Benchtop Spinner Line BS</b></p> <ul style="list-style-type: none"> <li>■ <b>Working Volumes:</b> 300-600 mL (BS0500)*, 600-1600 mL (BS1000)* and 900-3400 mL (BS3000)*</li> <li>■ <b>Agitation:</b> Magnetic driven pitched-blade Impeller, Speed: 2–250 rpm und 60-500 rpm</li> <li>■ <b>Instrumentation:</b> Headplate with eight PG13.5 and two 6mm ports supports pH, DO, OD and temperature sensors, exhaust gas port (optional off-gas condenser), gas supply, liquid addition/removal (media, acid/base, perfusion), level/antifoam control as well as sampling</li> <li>■ <b>Aeration:</b> Headspace and/or submerged gassing with dip tube, sinter glass sparger or L-sparger</li> </ul>	
<p><b>DASGIP Mini Spinner</b></p> <p>The DASGIP Mini-Spinner has been designed for stem cell application.</p> <ul style="list-style-type: none"> <li>■ <b>Working Volume:</b> 35-60 mL (DS0100)*</li> <li>■ <b>Agitation:</b> Magnetic driven pitched-blade Impeller, Speed 2-250 rpm</li> <li>■ <b>Instrumentation:</b> GL45 neck, three GL25 and one GL14 side ports plus versatile adapter support pH, DO and temperature sensors, gas supply, liquid addition and removal (media, acid/base, perfusion)</li> <li>■ <b>Aeration:</b> Headspace gassing</li> </ul>	

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\* not suitable for DASGIP Bioblock

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